

II. REMARKS

Claims 1, 2 and 4 have been amended and new claims 6-16 have been added. More specifically, claim 1 has been amended to additionally recite “wherein the oil accumulating room forms an annular space that extends in a circumferential direction around a central shaft” as supported on page 8, lines 4-6, and to recite “only one end portion of the fin member in an axial direction is fixed on an inner surface of the oil accumulating room” as supported on page 9, lines 24-26, of the specification as originally filed. Claim 2, which depends on claim 1, has been amended to correspond to the amendment to claim 1. The present amendment has no limiting effect on the scope of claim 2.

New claims 6-16 pertain the embodiment described in Figure 3 of the application as originally filed. More specifically, new independent claim 6 pertains to a “lubrication structure for a roller bearing” as supported by Figures 3a and 3b, and as described on page 10, line 18, to page 12, line 14, of the application as originally filed. New independent claim 11 pertains to a “supercharger” as also supported by Figures 3a and 3b, and as described on page 10, line 18, to page 12, line 14, of the application as originally filed.

New claims 7 and 12 depend upon claims 6 and 11, respectively, and additionally recite “wherein the fin member is fixed on an outer surface of a shaft end nut of the shaft so as to extend in an axial direction and in a radial direction” as supported on page 11, line 25, to page 12, line 1, of the original specification. New claims 8 and 13 depend upon claims 7 and 12, respectively, and additionally recite “wherein the oil accumulating room is formed by a space defined by a rotary cup having a cavity, a disk member and the shaft end nut” as supported on page 10, line 26, to page 11, line 2, of the original specification. New claims 9 and 14 depend upon claims 8 and 13, respectively, and additionally recite “wherein the lubrication oil supplying path includes a first flow path that penetrates through the disk member and a second flow path that that communicates with the first lubrication oil hole and

the second lubrication oil hole” as supported on page 11, lines 14-17, and by Figure 3a, of the application as originally filed. New claims 10 and 15 depend upon claims 9 and 14, respectively, and additionally recite “wherein the first flow path communicates with the oil accumulating room and the first flow path is inclined relative to the shaft so a first distance between an end opening of the first flow path communicating with the oil accumulating room and the central axis of the shaft is larger than a second distance between another end opening of the first flow path and the central axis of the shaft” as supported on page 11, lines 17-23, and by Figure 3a, of the application as originally filed. New claim 16 depends upon claim 11, and additionally recites “wherein the supercharger is boat supercharger, a ship supercharger or a vessel supercharger” as supported on page 10, lines 21-23, of the original specification.

No new matter has been added by the present amendment.

A. The Invention

The present invention pertains broadly to a lubrication structure for a rolling bearing, such as is used in machines having parts that rotate at high speeds. In particular, the present invention provides for a “lubrication structure for a rolling bearing” having the features recited by claim 1. In accordance with another embodiment of the invention, a “lubrication structure for a rolling bearing” is provided that includes the features recited by claim 6. In accordance with yet another embodiment of the present invention, a “machine that uses a rolling bearing and has a lubrication structure for the rolling bearing” is provided that includes the features recited by claim 4. In still another embodiment, in accordance with the present invention, a “supercharger comprising a lubrication structure for a rolling bearing” is provided that has the features recited in claim 11.

Various other embodiments, in accordance with the present invention, are recited by

the dependent claims. One advantage of the embodiments of the present invention is that a lubrication structure for a rolling bearing is provided that enhances the cooling of a rolling bearing by decreasing the rotational speed difference between the oil accumulating room and the lubrication oil. Another advantage of the embodiments of the present invention is that the lubrication structure for a rolling bearing makes it easier to estimate the supply quantity of lubrication oil required for cooling the rolling bearing, which improves the accuracy of predictions regarding the amount of lubrication oil that will actually be used.

B. The Rejection

Claims 1-5 stand rejected under 35 U.S.C. § 102(b) as anticipated by Sutton (U.S. Patent 2,712,967, hereafter, the “Sutton Patent”).

Applicants respectfully traverse the rejection and request reconsideration of the application for the following reasons.

C. Applicants’ Arguments

Anticipation under 35 U.S.C. § 102 requires showing the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim. Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick, 221 U.S.P.Q. 481, 485 (Fed. Cir. 1984). In the present case, the Sutton Patent does not teach each and every element of the claimed invention, and, therefore the rejection cannot be sustained.

The Sutton Patent

The Sutton Patent teaches “lubricating arrangements for rotating parts,” such shown in Figure 1, wherein a rotating part (10) is carried by three bearings (12), (13) and (14). The rotating part (10) is hollow and has fitted in it, adjacent the bearings (12), (13), (14),

corresponding oil feed fittings (15), (16) and (17), respectively. As shown in Figures 1 and 2, the fitting (15) associated with end bearing (12) has a central bore provided with walls provided with inwardly-projecting webs (20). The webs (20) have channels (21) formed between the webs (20) so as to reduce the tendency for oil fed into the channels to splash into an adjacent channel (col. 2, lines 50-59). A quill shaft (25) is disposed coaxially with the fitting (25) and is drivingly connected to shaft (26) so shaft (26) may be driven from the rotating part (10), (col. 2, lines 65-70).

However, the Sutton Patent does not teach, or even suggest, a “lubrication structure for a rolling bearing” wherein (a) an “oil communicating room forms an annular space that extends in a circumferential direction around a central shaft” and (b) “only one end portion of the fin member in an axial direction is fixed on an inner surface of the oil communication room” as recited in independent claims 1 and 4 of the present application.

The Sutton Patent also does not teach, or suggest, a “lubrication structure for a rolling bearing” that includes (a) “a first lubrication oil hole that radially penetrates through a first inner ring of the rolling bearing” and (b) “a second lubrication oil hole that radially penetrates through a second inner ring of the rolling bearing, wherein the first inner ring and the second inner ring are disposed along a central axis of a shaft” as recited in independent claims 7 and 11 of the present application. The Sutton Patent also does not teach, or suggest, the subject matter recited in dependent claims 8-10 and 12-16 of the present application.

III. Conclusion

The Section 102(b) rejection standing against the instant claims is untenable and should be withdrawn because the Sutton Patent fails to teach each and every claimed limitation. In particular, the Sutton Patent fails to teach, or even suggest, (1) a “lubrication structure for a rolling bearing” wherein (a) an “oil communicating room forms an annular


space that extends in a circumferential direction around a central shaft” and (b) “only one end portion of the fin member in an axial direction is fixed on an inner surface of the oil communication room” as recited in independent claims 1 and 4, and (2) a “lubrication structure for a rolling bearing” that includes (a) “a first lubrication oil hole that radially penetrates through a first inner ring of the rolling bearing” and (b) “a second lubrication oil hole that radially penetrates through a second inner ring of the rolling bearing, wherein the first inner ring and the second inner ring are disposed along a central axis of a shaft” as recited in independent claims 7 and 11.

For all of the above reasons, claims 1-16 are in condition for allowance and a prompt notice of allowance is earnestly solicited.

Questions are welcomed by the below-signed attorney for Applicants.

Respectfully submitted,

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